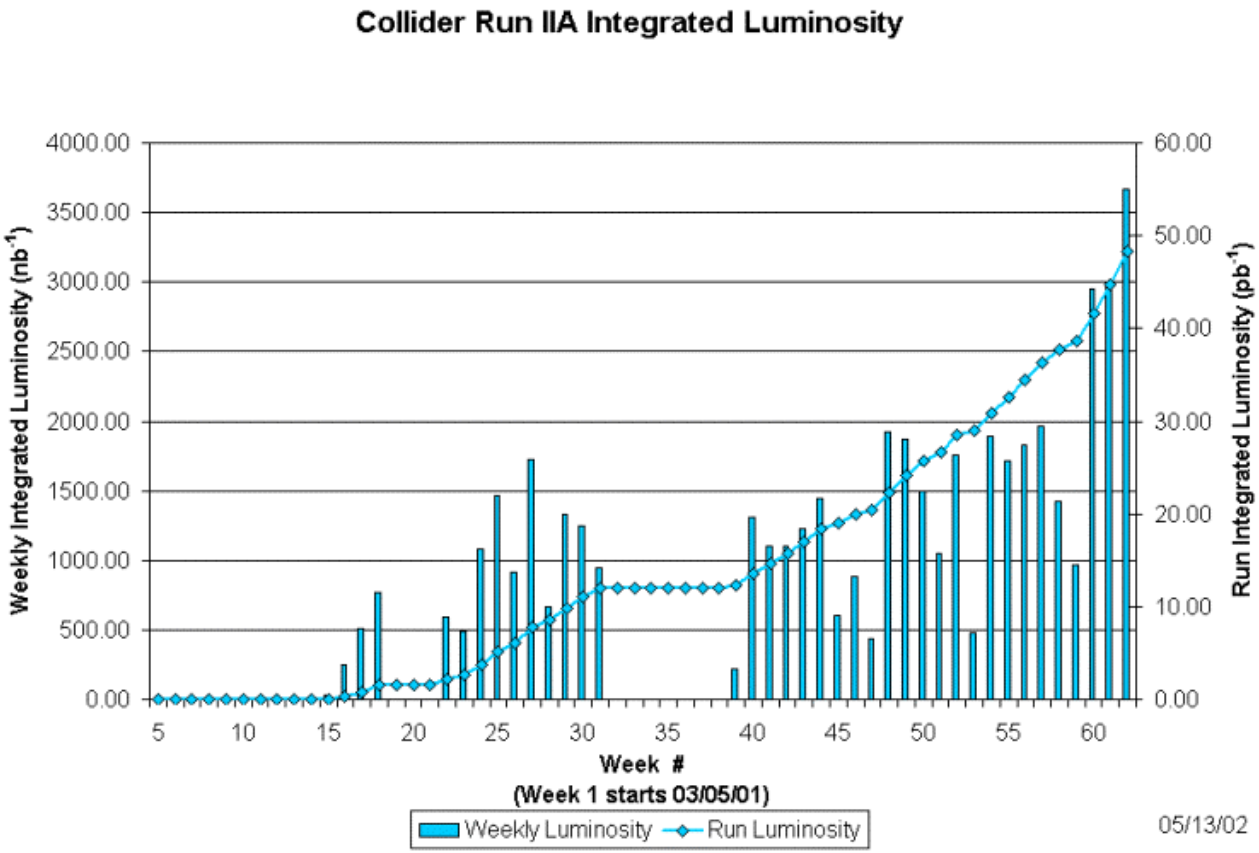
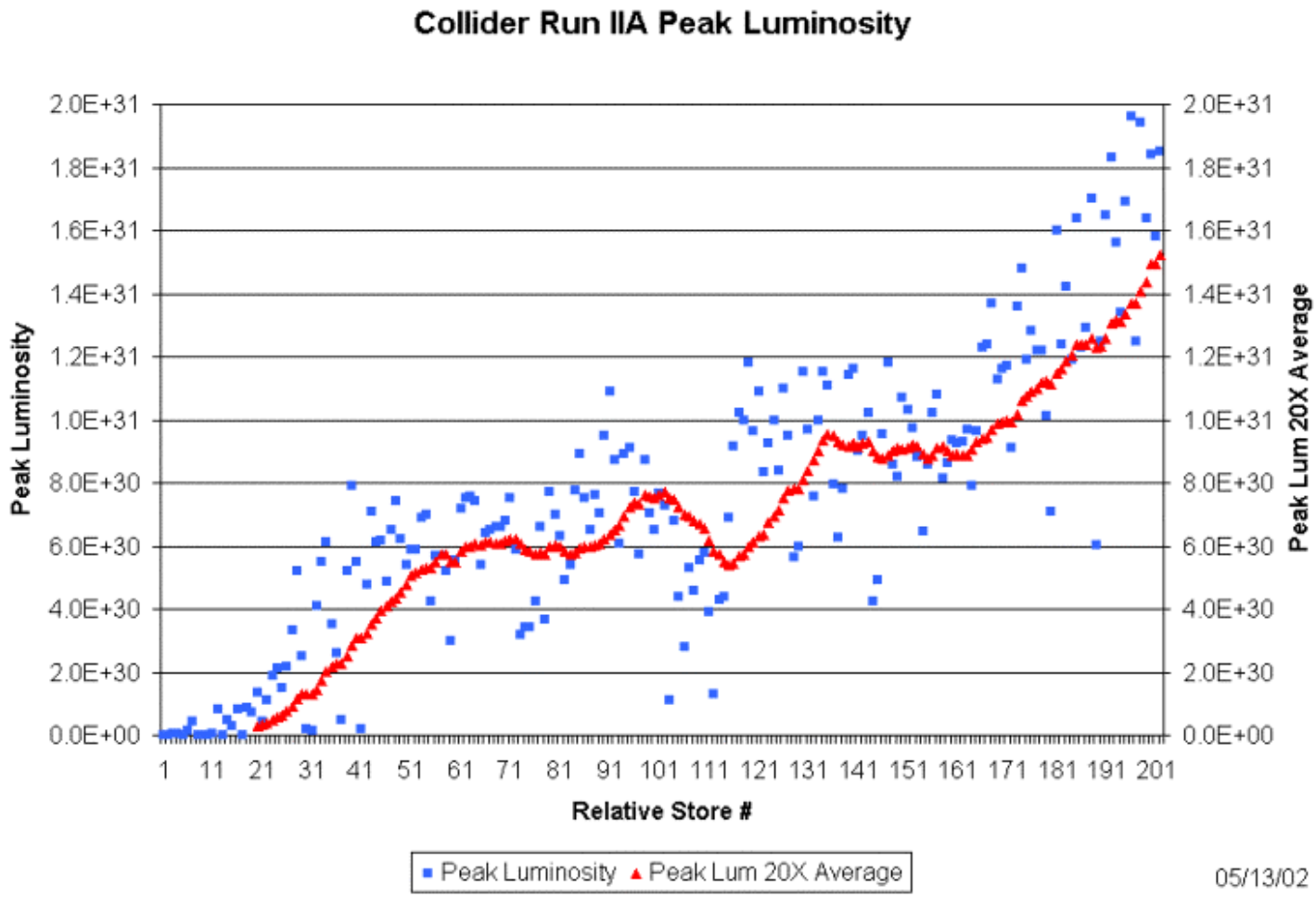
Beams Week in Review

- 7 stores
- Another record Initial Luminosity – 19.60 E30
- Record Integrated Luminosity – ~3600 nb^{-1}
- Linac problems
  - LRF3 PA aka ‘toasty’ dying
  - Reduce Linac beam current ~10%
- Machine studies
- Shutdown date set – 3 June for ~12 days

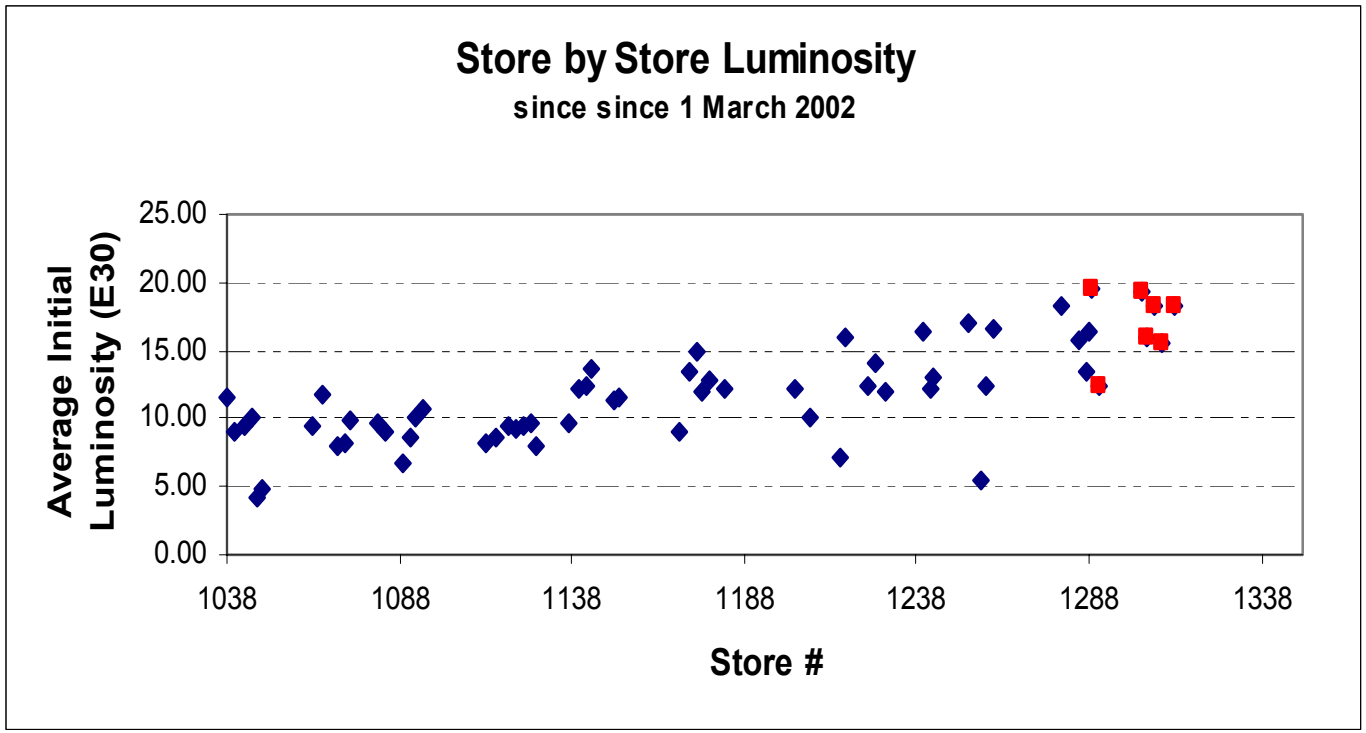
Integrated Luminosity



Peak Luminosity



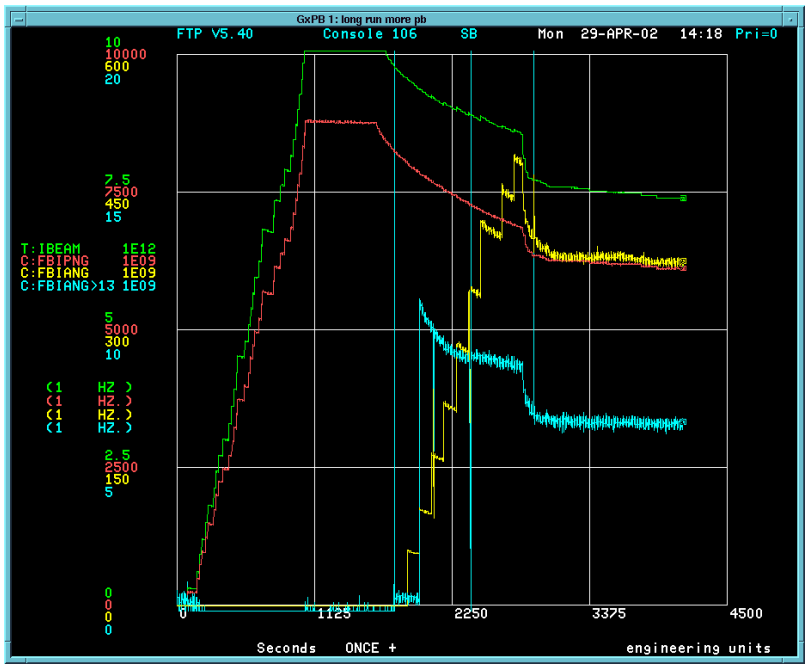
Initial Luminosity

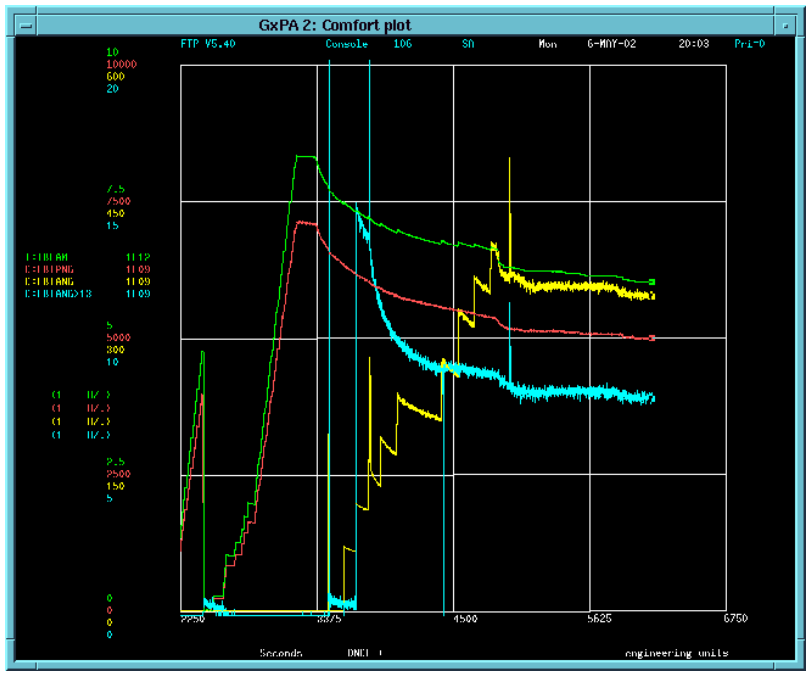


Initial Luminosity

- Reason for Recent Improvement
  - Continued refinement of Tevatron octupole tuning at 150 GeV
  - More Pbars used

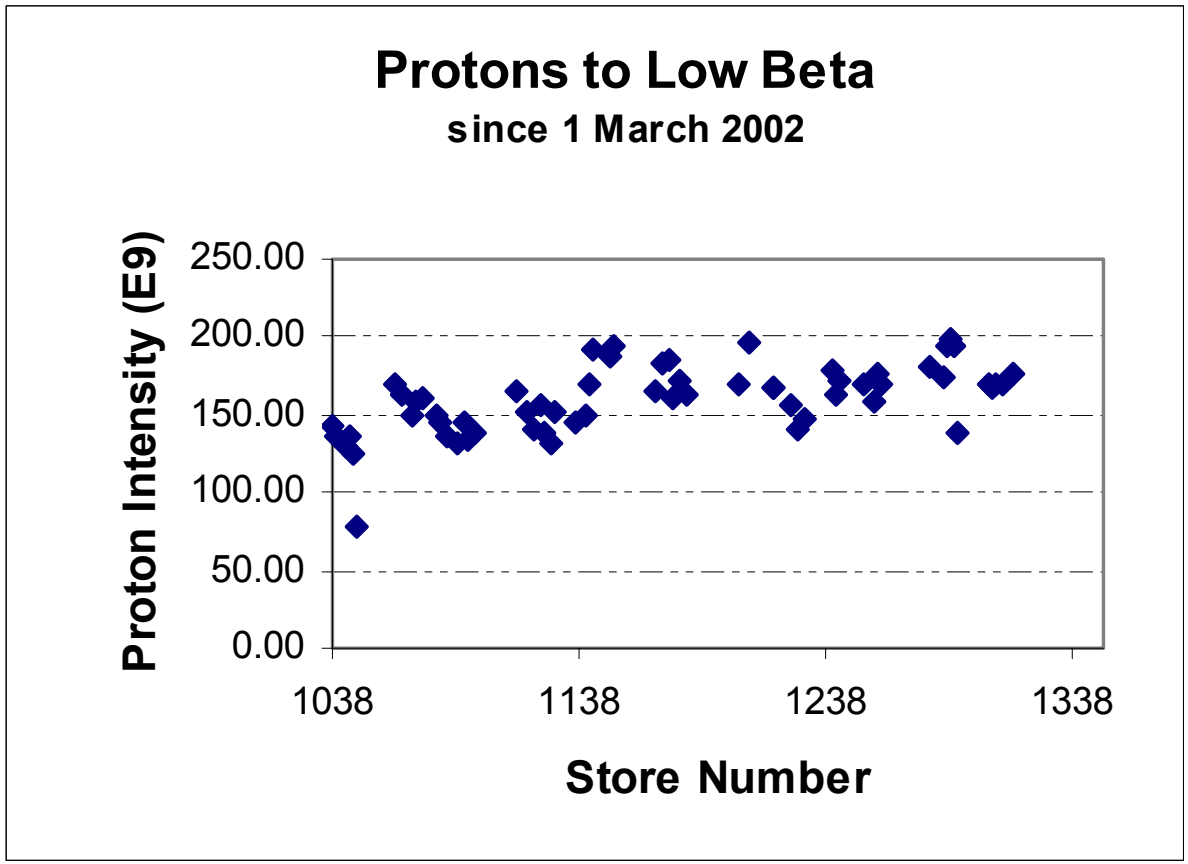
Tevatron Octupole Tuning



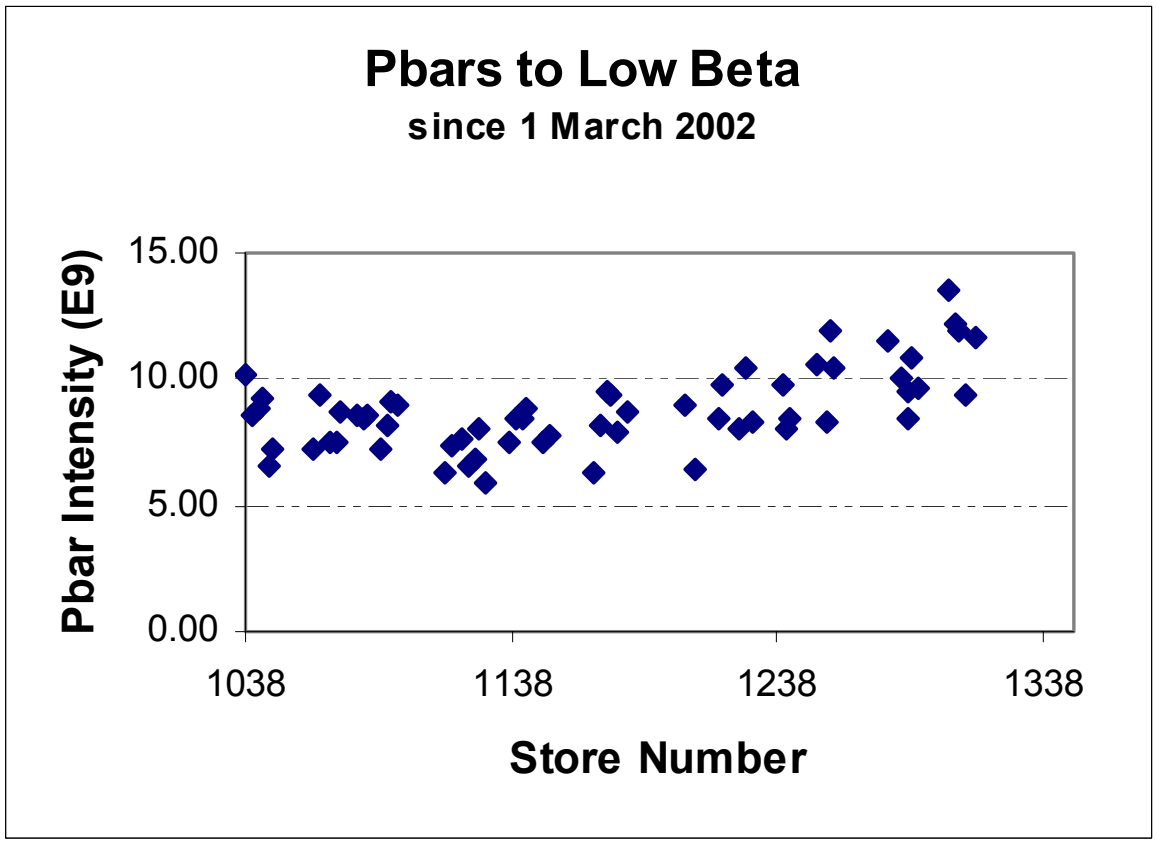


Store 1291

Protons to Collision



Pbars to Collision



Tevatron Studies Summary

- 150 GeV Lifetime
- 12 X 0 store for CDF (growth of losses)
- Tevatron Electron Lens studies at 150 GeV
- Tunes at the start of ramp (tune up work)

Tevatron Studies Summary

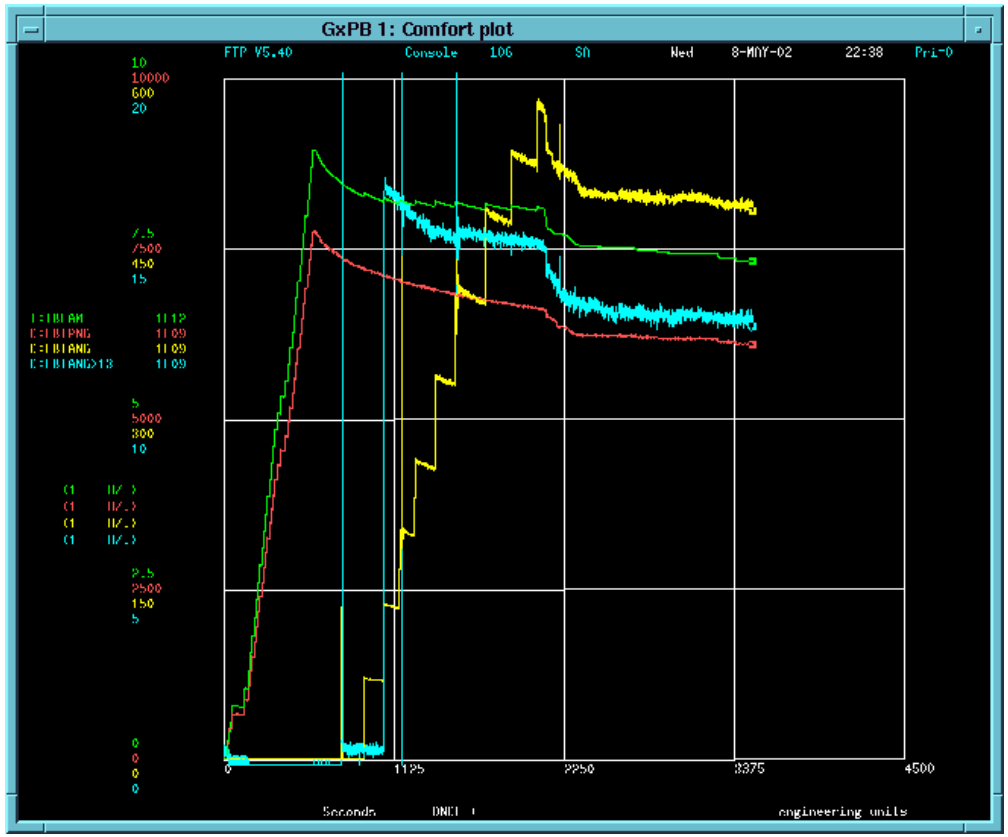
- 150 GeV Lifetime preliminary analysis
  - ~10 hr lifetime due to vacuum
  - ~15 hr lifetime due to leakage from RF bucket

    ~6 hr lifetime maximum under these conditions
- 12X0 store – Losses in the abort gap are much less with only protons. (TEL was not on for these measurements)

Tevatron Studies Summary

- TEL – Unable to increase proton lifetime by introducing tune spread, but may be useful to eliminate DC beam at 150 GeV. This may allow us to stuff more Protons into the Tevatron.
- Improved acceleration efficiency by adjusting differential tunes at start of ramp.

Tevatron Studies Summary



Store 1302

Pbar Studies Summary

- Stack without core transverse cooling
  - 5-6 mA/hour
  - Bodes well for new cooling installation
- New Core 2-4 GHz momentum cooling configuration
- Flying Wire development
- Diffusion measurements
  - Ions may contribute up to 30% of large stack (100 mA) emittance growth

MI Studies Summary

- $2B emittance in MI
- Transverse (revisited)
- Longitudinal (revisited)
- Beam Line Tuner

Recycler Studies Summary

- Work continues with both protons and pbars
  - Injection efficiency
  - RF manipulations
  - Stack
  - Extract Pbars to MI

Recycler Studies Summary